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The radio communiqués of the International Institute of Agriculture are transmitted between 2.10 and 2.20 p. m. on the following days: Monday, Italian; ***Tuesday,*** French; ***Wednesday,*** English; ***Thursday,*** German; ***Friday,*** Spanish.

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The hour of broadcasts is Central European Time, which is one hour ahead of Greenwich Mean Time and 5 hours ahead of Eastern Standard Time in the United States.

ACTIVITY OF THE INTERNATIONAL INSTITUTE OF AGRICULTURE

Permanent Committee of the Institute. — The first session of 1942 of the Permanent Committee of the Institute was held on Thursday, March 12 at 10 a. m. Different questions regarding the administrative and scientific activities of the Institute will be examined. A review of the proceedings of this meeting will be given in the next Chronicle.

The Minister of Agriculture and Forests of Italy. — Sig. Pareschi, Minister of Agriculture and Forests of Italy, visited the International Institute of Agriculture where he was welcomed by the President of the Institute, Baron Acerbo, the Vice-President Sr. Comolli, Delegate of Argentina, the Delegates of Germany, Bulgaria, Colombia, Denmark, Spain, Iran, Eire and Rumania who represented the Permanent Committee of the Institute, as well as by the Secretary General and the governing officers. The Presidents of the Italian Federations of Agriculture and the head officials of the Italian Ministries of Agriculture and of Foreign Affairs were present.

Baron Acerbo addressed a brief welcome to the illustrious guest calling attention to the reciprocal utility of the ever closer relations between the central departments of Italian agriculture and the International Institute of Agriculture.

Minister Pareschi said he was very pleased to have had the opportunity of coming into contact with the governing officials of the Institute and highly praised the activity of this international organization which, despite the present difficult circumstances, is preparing, through sound well based programs of work and a copious scientific documentation, to make an important contribution towards the future work of world economic reconstruction.

Visit of a Bulgarian Syndical Delegation. — A Bulgarian Syndical Delegation come to Italy in order to come into contact with the Italian federal and corporative organizations, paid a visit to the International Institute of Agriculture. The Chief of this Delegation, in replying to the greeting of the President of the Institute, stressed the importance of the work carried out by this organization which assumes an ever increasing importance even for the syndical movement of agriculture.

The volume for 1941 of the new bibliographical series *Bibliographia forestalis* has made great progress and will be published in spring; the preface will be given in five languages.

As regards monographs, that on the *International timber market from 1925 to 1938* is in the press and will come out within a few days. This is also the case for the monograph on the *Geographical distribution of forest species in the northern temperate zone*. The monograph on *Avenue planting* will probably come out in the first semester of the year.

Furthermore, in the last months of 1941, the Centre set to work on the execution of the program for the year 1942 decided at the Vth Session of its Committee, held at Baden Baden from October 21-25 last.

* * *

The Vth session of the Committee of the International Forestry Centre took place at Baden Baden (Kurhaus). The first two sittings (morning and afternoon of October 21) were devoted to the discussion of the report of the Director of the Centre on its activities, the budget and questions regarding the personnel and organization. It was during these sittings that the program of work for the year 1942 was ratified. In this respect, it was decided to give particular attention to the problems regarding timber economy.

These sittings were followed by others in which papers were read on forest problems, contributed by the permanent collaborators of the International Forestry Centre. These papers were: (1) The economic role of timber from deciduous trees in Europe; (2) The export of tropical woods to Europe; (3) Practical utilization of the results of investigations on sawdust in the countries of Northern and Central Europe; (4) Nature protection and landscape effects in forestry.

The last three days of the sessions were spent in excursions organized by the Forest Administration of the region of Baden which enabled the participants to visit the zones particularly characteristic as regards landscape and forest, in the North of the Black Forest and in the Rhine plain. At the end of the session a reception was given at Karlsruhe by the Reichsstatthalter and Gauleiter Robert Wagner, at which the Badener Minister-President Köhler, accompanied by the representatives of the Badener Forest Administration and of the University of Freiburg/Breisgau were present.

INTERNATIONAL BULLETIN
OF PLANT PROTECTION

1942 No. 3

DISCOVERIES AND CURRENT EVENTS *

ITALY.

A Bacterial Soft Rot of Capsicum Fruits †

In November 1939, observing a field of capsicum or pod-peppers (*Capsicum annuum* L.) in the garden of the Agricultural Technical Institute at Todi in the Province of Perugia, field which showed numerous fruits rotting as a result of an attack of *Botrytis*, of the *vulgaris* type, my attention was attracted by a dense, viscid, yellowish-green brown liquid of unpleasant odour contained in some of the diseased fruits.

A close examintion showed soft, rotting fruits not affected with *Botrytis*, but partly filled with this viscid liquid, and also fruits without this liquid though infested by the fungus and also rotting, dry or soft according to the more or less advanced stage of the disease.

The examination under the microscope of the malodorous liquid contained in the fruits rotted by some action other than that of *Botrytis*, revealed a myriad of very mobile bacteria measuring 1.0-1.5 × 0.3-0.5 μ which presented practically the character of a pure culture. This liquid extracted by a syringe from the interior of a fruit having a perfectly intact epidermis, reproduced the disease in 4-5 days when inoculated into a sound fruit.

The contagious and virulent character of the liquid contained in the rotting fruits thus being established and found not to be caused by *Botrytis*, I considered that the soft rot of capsicum-pods observed by myself as to be attributed to two different causes: (*a*) *Botrytis* which was discussed in a note published in 1941; (*b*) a bacterium which is now treated in this communication.

Characteristics of the Disease.

This soft rot of bacterial origin attacks the pods in any stage of ripening and in any part, preferably at the base of the peduncle. Within a few days it spreads over the whole fruit while a dense viscid liquid of repellent odour resembling that of spoiled pickled chillies, accumulates in the tip.

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from Professor GIUSEPPE ORSINI, Director of the Phytopathological Laboratory, R. Istituto tecnico agrario 'Augusto Ciuffelli', Todi, Italy.

Unripe green pods attacked by the disease show an olive-brown coloured spot which in 8-9 days spreads throughout the entire healthy tissue, while on ripe fruits (yellow or red), the infested area presented the usual softening without any change in the colour of the variety.

In consequence of the activity of the pathogenic agent, the parenchymous tissue of the fruit breaks down into a shapeless soft mass which, offering no resistance to a razor edge, made it impossible to obtain sections in order to carry out in the fresh state an anatomical pathological study of the histological disorder. With the advance of the disease, the decayed tissue is transformed into this dense, viscid and fetid liquid loaded with bacteria which macroscopically constitute the outstanding characteristic of this bacterial disease peculiar to capsicum pods. The epidermis is not attacked by the pathogenic agent and, remaining intact, stretches under the weight of the liquid which accumulates in the tip of the fruit which thus assumes the aspect of a cone with the top towards the ground. The epidermis subsequently breaks owing to biological and abiological causes and the liquid is discharged frequently falling on the pods lower down the plant and leading to further infestation. It also frequently happens that the wall of the fruit is detached completely from the calycinal disc owing to the rotting of the latter, so that the plant continues to bear the base of the fruit with or without shreds of the epidermis which on drying acquire the aspect and consistency of parchment.

Indications on the Causal Agent.

The examination of the morphological, cultural and physiological characteristics shows that the bacterium under consideration differs entirely from *Bacillus coli* (Escherich) Migula var. *capsici* Passalacqua, observed in 1931 near Palermo as cause of a dry rot of capsicum pods; and from *Bac. capsici* Pavarino et Turconi, found in 1912 in gardens in Bergamo and Treviglio and also *Bacterium exitiosum* Gardner et Kendrick (= *Bact. vesicatorium* Doidge), cause of bacteriosis of capsicum leaves.

Although the bacterium I studied in a few rare instances reproduced, through inoculation, the disease on tomato fruits, there are no grounds for considering it identical with *Bact. briosii* Pavarino as regards microbiological nor pathogenetic characteristics. In fact, when the disease takes a hold of the tomato, it shows characteristics very different to those caused by *Bact. briosii*, spreading in a few days to the whole fruit, which, while maintaining its normal colour, changes into a shapeless mass from which a semi-fluid liquid, formed in abundance inside the fruit through the disintegration of the tissues, drips. On the other hand, there is an affinity between the characteristics of the microorganism, subject of this report, and the chief morpho-physiological characteristics of *Bact. syringae* (van Hall) E. F. Smith indicated by different investigators. Even in this case, however, a complete identity between the two microorganisms is wanting because for *Bact. syringae* the diagnoses of the different scientists do not fully agree, showing differences which if sometimes they are only apparent, in other cases, on the contrary, are fairly perceptible

Chiefly the phytopathological characteristics of the bacterium studied by myself differentiate from those of *Bact. syringae.* In fact, inoculation of lemon plants and herbaceous shoots of the lilac and pear, kept in a water tank under a bell-glass, always gave negative results.

If it is taken into consideration, however, that the diseases of different plants produced by fluorescent bacteria are today attributed to *Bact. syringae*; that the parenchymous tissue is affected in the histological disorders caused by this bacteria; that the predisposition of the host plant to the development of *Bact. syringae* is represented by cold, humidity, wounding; that this microorganism is also subject to variations in pathogenic capacity, it is probable that the species I studied corresponds, owing to the cultural, morphological and biochemical affinity it shows with *Bact. syringae,* to a biological race of this latter species with adaptation and specificity to capsicums. It is not hazardous to consider, although with reserve, as serological tests and a comparative study of the verified stocks of *Bact. syringae* have not yet been carried out, that this species constitutes a 'group species', that is, a species which comprises sub-species or races or varieties varying slightly from each other but evidently belonging to the same species, as has been ascertained for *Bact. tumefaciens* Smith et Townsend, for *Bac. carotovorus* L. R. Jones and for other pathogenic microorganisms affecting plants, man and domestic animals.

For these reasons I think I am justified in considering the bacterium studied as a new variety; *Bact. syringae* (van Hall) E. F. Smith var. *capsici* n. var. G. Orsini.

Influence of Environment on the Disease.

The disease was encountered at the beginning of November, 1939 following some days of rainy weather, accompanied by a fall in temperature causing thick and persistent mists sometimes lasting the whole day.

The disease rapidly spread throughout the field and as it was abandoned by the grower, I was able to follow its development fully.

In 1940, the disease did not occur in the summer but began to reappear at the end of October, after the first autumn rains.

It appeared in 1941, having an epidemic character, during the cold and wet period in October-November.

I consider, therefore, that the disease is accompanied by great humidity and a low temperature, so that with the climate of Umbria, in a normal year, it would only affect the late crop of capsicums; other predisposing causes are wounds due to various reasons, as also a slight separation of the calycinal disc from the wall of the fruit. Even the evidence that the disease frequently begins at the base of the fruit, which, owing to its natural more or less concave shape facilitates the stagnation of water or virulent liquid from a diseased pod placed higher up confirms that the place of insertion of the fruit at the peduncle represents a way of infiltration for the parasite as is the case for different species of *Botrytis* and other species of pathogenic fungi.

Control Methods.

As the soft rot of bacterial origin attacking capicum pods only makes its appearance during the final stage of the vegetative cycle of this plant, it cannot be checked by means of the usual anticryptogamic substances, because between the time of application and harvesting, the period is not long enough to guarantee complete removal of the product employed, by the rains.

It is advisable, therefore, to harvest the last crop at the beginning of the autumn rains, even if the pods are not yet ripe provided that they fulfil trade requirements, and to destroy by fire all diseased fruits as well as all crop trash.

RUMANIA.

Phytopathological Events during the Year 1941 (*concluded*) *

Rot of Sunflower Heads.

Like all plants, the sunflower has numerous plant enemies which sometimes attack and destroy it in great numbers. Among these pests, the most important, known up to 1934, in our country were rust (*Puccinia helianthi* Schw.) and *Orobanche cernua* Loefling var. *cumana* (Wllr.) Beck, which for several years caused serious damage in Bessarabia and in the Department of Brăila in 1935.

Recently, a new and just as serious a disease appeared taking the form of rotting at the root and collar of the plant. This disease is caused by *Sclerotinia libertiana* Fuck. It was reported for the first time in Rumania in 1933 in fields at Giurgiuveni (Department of Ialomiţa), and subsequently in other districts, particularly at Tg. Frumos (Department of Iaşi).

During the summers of 1940 and 1941, it was found that sunflower heads were also attacked by a rot which caused very severe damage. The results of investigations carried out abroad together with our own observations show that this rot is always due to *Scl. libertiana*, which also brings about root and collar rot. It is a question, therefore, of the same disease, appearing in slightly differing forms owing to the fact that it develops on other parts of the plant and under exceptional climatic conditions.

The forms of rot produced by *Sclerotinia* on the sunflower as well as on a large number of cultivated or stored plants are diseases which have long been known in other countries.

They were mentioned for the first time by De Bary in 1886, and subsequently by Frank and Kirchner in 1897. In Great Britain, in 1917, a report was published in which the sunflower was indicated as the preferred host plant of *Sclerotinia*. In the following years, it was again cited by other investigators and reported in different parts of Russia, the United States (Montana) and Canada (Manitoba).

* Communication from the official correspondent of the Institute, Mr TRAIAN SĂVULESCU, Professor at the Faculty of Agronomy, Chief of the Phytopathological Section at the Institute for Agricultural Research of Rumania, Bucharest, Rumania.

In 1925, Rogatsch Maljutin described an attack in Russia of *Scl. libertiana* on the sunflower which had caused damage since 1923 and which had gradually increased in intensity. For the first time the appearance of this disease was reported on the inflorescences. According to this investigator, the inflorescence is the part most susceptible to infection by the mycelium of the fungus. The infection of one floret at the edge of the flower head is sufficient to change the inflorescence in a few days into a mucilaginous mass of mycelia and sclerotia.

The fullest report and also the nearest to our observations was that made by Atanasoff in Bulgaria during 1934. He reports this disease on numerous plants of considerable economic importance such as tobacco, beets, carrots, gherkins, melons, salad vegetables, tomatoes, beans, sunflowers, cabbages, rape, potatoes; earth-nuts, etc. Atanasoff considers the sunflower as one of the plants most severely attacked by this fungus. In Bulgaria and Central Russia, along the Volga, in Ukrainia and in the Caucasus, damage rose as high as 80 per cent. The fungus attacks all parts of the plant from the root to the fruits. This investigator gives a detailed description of the aspect of the disease on the root, the collar, flowers and fruits. Numerous scherotia have been found on the parts attacked. The imperfect form (*Botrytis*) was also observed on earth-nut plants attacked by this fungus.

The disease reported in Rumania in 1933 appeared first on the main roots and the collar. In wet weather, the parts attacked appeared as if scalded and were covered with a thick layer of mycelia; in dry weather, they had a dry and wilted aspect. At the same time the leaves also wilted. Wherever the disease appeared, the plants rotted and many of them were bent and broken.

This rot was subsequently reported in other regions of the country. The losses caused amounted to 10-15 per cent. and even higher, particularly in wet localities, in the depressions.

On the surface of the parts attacked and on longitudinal sections taken from the root and collar of diseased plants, in the region of the pith were found numerous elongated, black sclerotia, disposed in series, from the size of a lentil up to a bean.

In these areas, the fungus transforms the part into a mass of vascular bundles, surrounded by a decomposed parenchyma.

The investigations carried out by us have proved that this rot is caused by *Scl. libertiana*.

During the autumn of 1940, in September, rot of the flowerheads was observed in a sunflower field at Băneasa. The attack was very intense and the diseased inflorescences became useless.

The disease manifested itself by the softening of the flowerheads from their point of insertion up to the edges. At this time the heads bore fruits, but in the area where the attack occurred, the achenes remained small; the majority were shrivelled and the kernels had turned a brownish yellow colour. Softening of the tissues takes place not only in the flowerheads, but also at the base of the fruits in the infected part of the thalamus. On the attacked part, both on the upper and lower surface, at the insertion of the fruits and on the withered fruits

were found numerous sclerotia some millimetres in diameter, elongated, irregular, having a hard carbuncled wall. On the lower side of the flowerhead, the sclerotia were surrounded by a mycelium of a greenish gray colour, bearing conidiophores of the *Botrytis* type. This same mycelium subsequently appeared among the seeds. The collar and root of plants with diseased flowerheads had a healthy aspect and no sclerotia were found in the pith. In 1941 this flowerhead rot had spread practically throughout the country, in some places (for example in North Moldavia) causing as much as 70 per cent. damage.

Our observations, which confirm those of other investigators, indicate that humidity plays an important part in the development of the disease. The severe attack of 1934 affecting the collar and roots of the plants occurred in the depressions where humidity is greatest. The infection observed on flowerheads, during the years 1940 and 1941, developed following an extremely rainy summer. Even, in September, when the attack occurred after a few days rain, the rot had invaded the heads to such an extent that it was difficult to find specimens showing intermediate stages.

The optimum temperature for the development of this fungus varies between 17 and 20° C. as seen from our laboratory experiments using inoculated cultures on artificial media; high temperatures checked the development of the disease.

According to Atanasoff, this rot often occurs on young sunflower plants as well as on other young plants. In Rumania, this fungus was only observed on full-grown plants, in the two aforesaid forms: at the base of the stalk and on the flowerheads.

As regards the resistance of the different varieties, according to observations made in Russia, it appears that all the varieties are equally attacked and that the fungus does not present physiological races.

In the experiment field at Băneasa, where three strains were cultivated (one having black seed, another with spotted seed and the third with white seed), it was seen that the white-seeded strain was attacked the most; the black-seeded strain showed greater resistance.

Among the first measures to be taken is the uprooting of the diseased plants and their destruction by burning. The cultivation of the sunflower should be avoided in the depressions and humid regions which become favourable for the development of the disease during wet years. In view of the great resistance of the sclerotia, this plant should not be cultivated on the same fields for some years after the first infection. The sunflower should be grown in rotation with other crops which are not attacked by this fungus, for example, with cereals or pulses which are less affected. Healthy, sound seed must be used: any sclerotia on the fruit germinates and the mycelium which results would infect the root and collar of the plants even in non-infected ground.

We are of the opinion that deep ploughing diminishes the infection of the mycelium which is found on the diseased parts, as well as that of the sclerotia buried in the soil.

The application of fertilizers does not appear to have any influence on the development of the disease.

Leaf Spot of *Caragana arborescens*.

In the gardens of the town of Chişinău, Department of Lăpuşna, in September, the leaves of *Caragana arborescens* showed yellowish, subsequently darker, irregular spots, covering practically the whole leaf surface. At the place of the spots were spherical pycnidia which emitted white spore chains measuring up to one millimetre in length. The bacillary spores, presenting 1-3 transversal partitions, were straight or flexuous, hyaline and measured 34.14-55.66 × 2.78-4.14. The characteristics of this fungus corresponded completely to the diagnosis of *Septoria caragenae* P. Henn. reported only in Germany and discovered this year for the first time in Rumania.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — By Ordinance No. 28 of January 3, 1941 relative to the distribution to those concerned of borax and anticryptogamic preparations and insecticides containing copper, it is established that the products in question may only be delivered by dealers on presentation of a permit authorizing purchase. However, copper preparations for destroying weeds as also certain anticryptogamic preparations and insecticides having a low copper content may be sold without restriction. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang Januar 1942, 22. Jahrg., Nr. 1, S. 4).

*** An Ordinance dated October 10, 1941 relative to permits for the purchase of anticryptogamic preparations and insecticides supplements the provisions of January 3, 1941 summarized above.

The permits in question will be provided with different coloured coupons: blue for copper sulphate, green for copper preparations. The red-coloured permits authorizing the purchase of borax have been suppressed.

The coupons cannot be utilized to obtain preparations other than those officially recognized by the Central Plant Protection. Interested parties, to obtain these permits, should make an application to the authorized distribution Centre indicated by the Plant Protection Service. (*Ibid.*, S. 4-5).

*** The police regulations (' Polizeivorschriften ') relative to the transport of plants [see this *Bulletin*, 1940, No. 6, p. 122] have been brought up to date by a rectification valid up to June 1, 1941 (*Ibid.*, S. 5).

Germany (**Alsace**). — Two Ordinances dated October 27, 1941 regulate the trade in toxic preparations utilized in plant protection, as also the trade in poisons, by adapting the provisions regarding same already in force throughout the remainder of Germany by virtue of the Ordinances of January 11, 1938 and February 13, 1940 [see this *Bulletin*, 1938, No. 4, p. 78 and 1940, No. 6, pp. 121-122]. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang Januar 1942, 22. Jahrg., Nr. 1, S. 5).

Germany (Protectorate of Bohemia and Moravia). — Decree No. 401 dated November 20, 1941 modifies slightly the Decree of December 5, 1940 [see this *Bulletin*, 1941, Nos. 7-8, p. 142] relative to the supervision of and trade in products intended for the protection of plants and plant products against noxious pests. (*Sammlung der Gesetze und Verordnungen des Protektorates Böhmen und Mähren*, Prag, Dezember 1941, 168. Stück, S. 2081-2082).

United States of America. — It has been found as a result of additional experiments with treatments for freeing nursery stock and potted plants from the immature stages of the Japanese beetle [*Popillia japonica*] that the methyl bromide fumigation treatments may be further modified. Accordingly the administrative instructions to inspectors on the treatment of nursery products, fruits, vegetables, and soil, for the Japanese beetle, modified on August 6, 1941, provide for a temperature of 67° F. instead of 70° as heretofore, for the 2 ½-hour treatment with a 2-pound dosage; and for 73° under a 2 ½-hour treatment with a 1 ½-pound dosage. The diameter of the soil balls in all treatments is placed at a maximum of 14 inches instead of 12 inches as heretofore. (*Federal Register*, Washington, August 14, 1941, Vol. 6, No. 158, pp. [4055]-4056).

France. — A Law of November 28, 1940 prescribes the declaration of copper sulphate stocks. (*Bulletin de Renseignements agricoles*, Paris, 1er décembre 1940, année 1940, nº 22, p. 436).

*** A Law dated January 3, 1941 modifies and supplements the Law of November 28, 1940 relative to the declaration of copper sulphate stocks. (*Ibid.*, 15 janvier 1941, année 1941, nº 2, p. 40).

*** A Decree of March 25, 1941 establishes the statute of the officers of the Plant Protection Service. (*Ibid.*, 1er avril 1941, nº 7, p. 236-237).

*** Another Decree of the same date establishes the scale of pay and expenses of the officers of the aforesaid Service (*Ibid.*, p. 237).

Switzerland. — Ordinance No. 2 of the Federal Department of Public Economy dated December 18, 1941 disposes as follows:

The products employed in the control of crop and food pests, and for weed destruction, in so far as they regard agriculture and allied branches, cannot be manufactured or sold without the authorization of the Federal Stations for experiments and agricultural analyses. A special authorization is required for each product.

The sales authorization is required for all the products an establishment manufactures, as also for those the said establishment sells or puts up for sale, including products of foreign origin. The products of Swiss origin already au-

thorized may be resold without a special permit, provided that they are delivered in the original packing and that the retail dealer changes neither the name, nor the composition nor the instructions regarding method of use.

New products and all those which have not been checked cannot be put on the market until the competent Station has subjected them to biological and chemical tests and also, if necessary, to a large scale practical test. The Station may dispense with the biological test if from a physico-chemical examination it is found that the product is utilizable. With a view to accelerating the checking of new products and assuring the results several Stations may undertake simultaneously the tests considered indispensable. In some cases, the biological checking of new products to be tested on a large scale may be executed by the Station according to a plan agreed upon in advance between the said Station and the manufacturer.

Each authorized product is given a check number.

It is prohibited to change in any way whatsoever the designation or chemical or physical composition of a product without the authorization of the Station for control.

The use of products, the manufacture and sale of which are authorized may only be recommended for the control of the parasites, diseases or weeds endorsed by the permit. This authorization may be supplemented if it is proved that the products cover a wider use.

In granting the permit the Stations do not in any way undertake to assure the supplying of raw materials to the manufacturer, nor the sale of the finished product.

The authorized establishments will forward each year before Jannary 15 to the competent Station, on a special form, a complete list of the parasiticides and weedicides which are endorsed by permits for manufacture and selling. The forms will be furnished by the control Stations.

The Federal Stations publish each year in the agricultural press a list of the authorized products, giving the name of the manufacturer or important, active principles and dosage. If the prices are printed, the publication will give any changes which may be made during the course of the year.

Only those products complying with the regulations of the ' Manuel des matières auxiliaires de l'agriculture ' may be placed on the market.

With a view to assuring a rational and economic use of raw materials, the Federal Stations for experiments and agricultural analyses are authorized to make arrangements with the manufacturers as regards the minimum content of the principal active substances.

The check number should always be stamped on the packing. Packing, labels, handbills, etc. referring to the substances employed in the control of plant pests (insecticides, fungicides, weedicides) must carry, besides decorative labelling, the regular name of the product in clear, readable letters, sufficiently large in size.

The nature of the active substances contained in each product and method of use should be indicated on the packing, handbills, advertisements etc. according to the regulations established by the ' Manuel des matières auxiliaires de

l'agriculture'. Poisonous products must be indicated by a caput mortuum of proper size on the packing, handbills, etc. The content of poisonous substances should be given in percentage, conformably to the prescriptions of the Manual.

The sale and use of toxic products are governed by cantonal prescriptions. To prevent waste, indication will be clearly given, by volume or by weight, of the minimum doses of each product to be employed.

The agencies of the Stations or their agents are authorized to take from manufacturers, as also in the sales depots, premises, branches, etc. of the establishments which trade in the products employed for the control of crop and food pests, samples of the substances which are stored or placed on sale, and to verify or cause to be verified whether the prescriptions of this Ordinance are observed.

The cantons are required to place the police at the disposal of the checkers.

The control Stations may at any time demand from manufacturers, sellers and buyers of products subject to control to forward them samples for analysis. The Stations will refund the transport expenses to the manufacturer. They will reimburse these expenses and the value of the sample to middlemen and buyers.

If the purchase value of one product is as much as or over 200 francs, the buyer is entitled to have from the seller, for each delivery, a certificate giving him the right to an analysis of the product. The buyer who has received this certificate may request the control Station, on the payment of a small office fee, to verify whether the content of the product in active substances corresponds to the requirements of the ' Manuel des matières auxillaires de l'agriculture '.

This measure does not apply to raw materials intended for the manufacture of products or those purchased for reselling.

The reprinting of analytical reports or their use for advertising purposes is prohibited (*Recueil des lois fédérales*, Berne, 8 janvier 1942, nº. 1, p. 1-11).

RECENT BIBLIOGRAPHY

AGATI, Julian A., SISON, Pedro L., and ABALOS, Roman. A progress report on the rice maladies recently observed in Central Luzon with special reference to the "stunt or dwarf" disease: 1. *The Philippine Journal of Agriculture*, Manila, 1941, Vol. 12, No. 2, pp. 197-210, pls. 1-7. Literature cited, pp. 207-208. [*Nephotettix bipunctatus*].

AGDEPPA, Felipe T. The effect of some insecticides on varnished and finished surfaces. *The Philippine Journal of Forestry*, Manila, 1941, Vol. 4, No. 2, pp. 161-169, pls. 1-4. References, p. 167.

APPEL, O[tto]. (Herausgegeben von). Handbuch der Pflanzenkrankheiten. Berlin, Verlag von Paul Parey, 1941, VI. Bd.: Pflanzenschutz. Verhütung und Bekämpfung der Pflanzenkrankheiten, 5 (Schluss-) Lief., S. 401-732, Abb. 183-184. RM 20.60

[For the first four parts of this VIth volume, see this *Bulletin*, 1939, No. 3, p. 58 and 1940, No. 1, p. 12.

This fifth and final part of the volume contains, besides the sequel and continuation of the fourth part (IV. Resistenz gegen tierische Parasiten und Schädlinge) of the fifth chapter (Fünfter Abschnitt: Anbau und Züchtung krankheitsresistenter Sorten von E. Köhler, S. 401-406), the following chapters:— Sechster Abschnitt: Die Pflanzenschutzgesetzgebung.

I. Die gesetzliche Regelung des Pflanzenschutzes in Deutschland von S. Wilke (S. [407]-463).
II. Die gesetzliche Regelung des Pflanzenschutzes in ausserdeutschen Ländern von H. Braun (S. 463-583).
Siebenter Abschnitt: Die Pflanzenschutzorganisationen von Otto Appel und Hermann Voelkel (S. [584]-632, Abb. 183-184).
Achter Abschnitt: Die Pflanzenschutzliteratur von H. Morstatt (S. [633]-664).
Alphabetisches Sachverzeichnis (S. [665]-732)].

BAILLEAU, J. Les froids de 1941 et la disparition des oiseaux utiles. *Revue Horticole*, Paris, 1941, 113ᵉ année, nº 2079, p. [357]-358.

BALDASSARI, T. I più ridotti trattamenti invernali ai fruttiferi. *L'Agricoltore Ferrarese*, Ferrara, 1941, anno XLVI, n. 11, pp. 350-352.

BERNARDI, Bernardo. La medicatura del seme di frumento. *L'Italia Vinicola ed Agraria*, Casalmonferrato, 1941, anno XXXI, n. 31, pp. 455-457.

BERTOLINI. Lotta collettiva obbligatoria contro gli antonomi dei fiori e delle gemme. *Terra Trentina*, Trento, 1941, anno 54º, n. 12, pp. 165-169.
[*Anthonomus pomorum, A. cinctus*].

BONI, G. Trattamento ai fruttiferi in clima autarchico. *Note di Frutticoltura*, Pistoia, 1942, anno XX, n. 1, pp. 11-14.

BOVEY, P[aul], [et] CLAUSEN, R. Observations sur quelques insectes nuisibles aux cultures fruitières du Valais central. *Revue Horticole Suisse*, Châtelaine-Genève, 1941, XIVᵉ année, nº 11, p. [315]-323, fig. 1-8; nº 12, p. [341]-350, fig. 9-18; 1942, XVᵉ année, nº 1, p. 2-7. Auteurs cités, p. 7.
[*Chloroclystis rectangulata, Operophthera* (*Cheimatobia*) *brumata, Argyresthia conjugella, Tmetocera ocellana, Argyroploce variegana, Cacoecia lecheana, C. sorbiana, C. podana, Pandemis ribeana, Cnephasia incertana, Anthonomus pomorum, Psylla costalis*].

BRAUN, Rudolf. Insektenschäden an der Tanne im Wienerwald. *Centralblatt für das gesamte Forstwesen*, Wien 1941, 67. Jahrg., Heft 9, S. 186-191; Heft 10, S. [193]-196. Schrifttum, S. 196.
[*Cacoecia murinana, Ips curvidens, Cryphalus piceae, Dreyfusia nüsslini*].

CAIRASCHI, E.-A. Le problème de la transmission des maladies à virus des plantes. Rôle et importance des insectes-vecteurs. *Revue Horticole*, Paris, 1941, 113ᵉ année, nº 2079, p. 373-375.

CAIRASCHI, E.-A. Du rôle des « pucerons mauves » (du genre *Yezabura* Mats.) dans le développement défectueux des organs végétatifs des Pomacées cultivées. Remarques en vue d'une lutte efficace. *Revue Horticole*, Paris, 1941, 113ᵉ année, nº 2080, p. 409-412, fig. 189-192.

CANDURA, G[iuseppe] S[alvatore]. Nuovi indirizzi per i trattamenti al grano da conservare e agli altri semi. Risultati sperimentali. *Il Coltivatore e Giornale Vinicolo Italiano*, Casale Monferrato, 1941, anno 87º, n. 19, pp. 214-216.

COFFMAN, F. A., HUMPHREY, H. B., and MURPHY, H. C. New red oats for fall seedlings resistant to rusts and smuts. *Journal of the American Society of Agronomy*, Geneva, New York, 1941, Vol. 33, No. 10, pp. 872-882, fig. 1. Literature cited, p. 882.
[Uredinales and Ustilaginales].

COSTA, A. S., e FORSTER, R. Identidade do virus de vira-cabeça e sua inclusão no grupo do virus do " spotted wilt ". *Bragantia*, Campinas, 1941, vol. 1, nº 7, pags. [491]-516, figs. 1-19. Literatura citada, pags. 503-506.
[With summary in English].

COSTANTINO, Giorgio. Un insetto parassita della *Feijoa sellowiana* Berg: il *Labidostomis taxicornis* Fabr. *Annali della R. Stazione Sperimentale di Frutticoltura e Agrumicoltura di Acireale*, Acireale, 1941, vol. XVI, pp. [1]-6, tav. I-II. Pubblicazioni consultate, p. 6.

COSTANTINO, Giorgio. Danni accidentalmente causati dall'*Otiorrhynchus armatus* Boh. a due specie del genere *Citrus: Citrus medica* L. (cedro rugoso, cedro vozza vozza) e *Citrus limonia* Osb. *Annali della R. Stazione Sperimentale di Frutticoltura e Agrumicoltura di Acireale*, Acireale, 1941, vol. XVI, pp. [7]-10, tav. III. Pubblicazioni consultate, pp. 9-10.

CRUMB, S. E., EIDE, P. M., and BONN, A. E. The European earwig. *United States Department of Agriculture, Technical Bulletin No. 766*, Washington, D. C., 1941, 76 pp., 27 figs. Literature cited, pp. 73-76.
[*Forficula auricularia*].

CUISANCE, P. Les dégâts occasionnés par les lièvres dans les pépinières. *Revue Horticole*, Paris, 1941, 113e année, nº 2084, p. 510-511.

DE JONGE, J. A., en LEENDERTZ, A. C. Thrips in vlas on hare bestrijding. *Ministerie van Landbouw en Visscherij. Directie van den Landbouw. Landbouwvoorlichtingsdienst. Mededeeling No. 18*, Wageningen, H. Veenman & Zonen, 1941, 130 blz., 6 pl., 9 grat. Literatuur, blz. [130].
[*Thrips lini*].

DELL'ANGELO, G. G. Malattie crittogamiche del garofano: fusariosi parenchimatica. *La Costa Azzurra Agricola-Floreale*, Sanremo, 1941, anno XXI, n. 11-12, pp. 102-104, 2 figg. Bibliografia, p. 104.
[*Fusarium culmorum, F. avenaceum, F. scirpi* var. *acuminatum*, etc.].

DIONIGI, Alviero. "Letargo attivo" e "letargo passivo" in patologia vegetale. *Rivista di Patologia vegetale*, Pavia, 1941, anno XXXI, nn. 9-10, pp. [165]-171.

DOTTI, Francesco. Epoca d'irrorazione e l'efficacia dei trattamenti contro la bolla del pesco. *L'Avvenire Agricolo*, Milano, 1941, anno 49º, n. 11, pp. 305-309. Bibliografia, p. 309.
[*Exoascus deformans* = *Taphrina deformans*].

DOTTI, Francesco. Pratiche di stagione nella cura dei fruttiferi nelle contingenze attuali. *Bullettino dell'Agricoltura*, Milano, 1941, anno 75º, n. 52, pp. 1-2.

DUBAQUIÉ. France: Essais de traitement contre le mildiou par l'ammoniure de cuivre; Bordeaux, 1941. *Bulletin de l'Office international du Vin*, Paris, 1941, 14e année, nº 148, p. 86-87.
[*Plasmopara viticola*].

DUFRÉNOY, J. La production aux Etats-Unis d'hybrides de pommes de terre résistants aux maladies à virus. *Revue Horticole*, Paris, 1942, 114e année, nº 2085, p. 7-8.

FAES, H. Sur l'économie nécessaire dans l'utilisation des sels de cuivre en 1942. *La Terre Vaudoise*, Lausanne, 1941, XXXIIIme année, nº 49, p. 578; nº 50, p. 586.

FEYTAUD, J[ean]. La défense contre le doryphore au champ et au jardin. *Revue Horticole*, Paris, 1941, 113e année, nº 2079, p. 369-371.
[*Leptinotarsa decemlineata*].

FILIPJEV, I. N., and SCHUURMANS STEKHOVEN, Jr., J. H. A manual of agricultural helminthology. Leiden, E. J. Brill, 1941, XV + 878 pp., 460 figs. Litterature on morphology and biology of nematodes, pp. [88]-93; on non-marine free-living nemas, pp. [161]-167; on technical methods of the investigation of nematodes, pp. 195-196; on plant-parasitic nematodes, pp. 703-724; on insect parasites, pp. 872-878. 18. – guilders.
[This manual which originally should have been the second edition, translated into English, of the book on the nematode parasites of plants, published in 1934 in Russian by I. N. Filipjev, was, after the death of this writer, completed and finished by J. H. Schuurmans Stekhoven Jr. assisted by S. Frechkob. The important additions of the second author successively introduced into the original text of Filipjev were such that the result was an entirely new book.
It consists of five parts together with an appendix. The first part treats on the general morphology and the biology of nematodes; the second deals with systematics; in the third the technical methods for the collection and preparation of the nematodes are explained; in the fourth, which is the most extensive, a detailed description is given of the very numerous species of these worms which parasitize plants; finally in the fifth, the nematodes which are parasites of insects are reviewed. The appendix covers the *Gordiaceae* or *Nematomorpha*, interesting group of parasites which have been considered as being very similar to nematodes, although they have no connection with these and should be included in the *Vermes polymera*. A most comprehensive, up to date bibliography concludes each section of this book].

FISCHER, Walter. Die Untersuchung von Pflanzenschutzmitteln. Neudamm und Berlin, Verlag J. Neumann, 1941, VIII u. 72 S. (Handbuch der landwirtschaftlichen Versuchs-und Untersuchungsmethodik (Methodenbuch) herausgegeben vom Verband Deutscher Landwirtschaftlicher Untersuchungsanstalten in Verbindung mit dem Forschungsdienst (Reichsarbeitsgemeinschaften der Landwirtschaftswissenschaft) zusammenfassend bearbeitet von Rudolf Herrmann. Band VII). RM 7.50

The seventh volume of the Manual on methods of control and agricultural analysis is given over to measures for controlling plant diseases and pests. As regards the chief substances and chemical preparations employed in plant protection, the author describes the methods of chemical analysis together with some information of a physical nature. The subjects treated, comprising besides the principal control measures, certain more or less general characteristics, such as water content, adhesive capacity, etc. are arranged in alphabetical order.

The book is formed of unbound sheets, so that it can easily be kept up to date by replacing or adding any sheet as required, thus avoiding the necessity of a new edition].

GÄBLER, Hellmuth. Nahrungsverbrauch, Kotproduktion und kritische Eizahlen der Nonne Lymantria monacha L. an Kiefer und Fichte. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1941, 51. Bd., Heft 10/11, S. 462-484, Abb. 1-5. Schrifttum, S. 483-484.

GABOTTO, L[uigi]. Realtà e speranze sugli anticrittogamici. *Il Coltivatore e Giornale Vinicolo Italiano*, Casale Monf., 1941, anno 87°, n. 23, pp. 252-253.

GERBALDI, C[ostanzo]. Prove di lotta contro la ticchiolatura del melo con miscele a freddo di calce e zolfo. *Rivista di Frutticoltura*, Ravenna, 1941, vol. 5°, n. 3, pp. [133]-142, 1 fig.
[*Venturia inæqualis*].

GIORDANO, Vincenzo. La coltivazione del piretro. La produzione della Liguria. *Giornale di Agricoltura della Domenica*, Roma, 1941, anno LI, n. 51, p. 428. [*Chrysanthemum cinerariaefolium*].

GOIDÀNICH, Athos. Contro il verme del pesco. La lotta in Italia e in America. *Giornale di Agricoltura della Domenica*, Roma, 1942, anno LII, n. 1, p. 3, 3 figg. [*Cydia molesta*].

GOIDÀNICH, Gabriele. Il problema della grafiosi dell'olmo nella fase risolutiva. *Annali della R. Accademia di Agricoltura di Bologna*, Bologna, MCMXLI, vol. I della nuova serie per gli anni 1939-1940, pp. 89-109, figg. 1-13.
[*Graphium ulmi*].

GOMEZ, José Manuel. Argentine: Le phylloxéra à San Juan. *Bulletin de l'Office international du Vin*, Paris, 1941, 14e année, n° 148, p. 79-86.
[*Phylloxera vastatrix*].

GÖTZ, BRUNO. Laboratoriumsuntersuchungen über den Einfluss von konstanten und variierenden Temperaturen, relativer Luftfeuchtigkeit und Licht auf die Embryonalentwicklung von *Polychrosis botrana*. *Anzeiger für Schädlingskunde*, Berlin 1941, XVII. Jahrg., Heft 7, S. [73]-83, Abb. 1-7; Heft 8, S. [85]-96, Abb. 8-10; Heft 11, S. 125-129. Schrifttum, S. 129.

HADORN, Ch. Expertise über Frostschäden an Obstbäumen. *Schweizerische Zeitschrift für Obst- und Weinbau*, Wädenswil 1941, 50. Jahrg., Nr. 25, S. 494-498.

HADORN, Ch. Kastaniensterben im Tessin ? *Schweizerische Zeitschrift für Obst-und Weinbau*, Wädenswil 1942, 51. Jahrg., Nr. 1, S. 8-9.
[The cause of this disorder has not yet been definitely ascertained].

HANF, M. Keimung und Entwicklung des Klettenlabkrautes (*Galium aparine* L.) in verschiedener Aussaattiefe. *Angewandte Botanik*, Berlin-Zehlendorf 1941, Bd. XXIII, Heft 4, S. [152]-163, Abb. 1-7.

HAYWARD, Kenneth J. La « polilla negra » del duraznero (*Cydia molesta* Busck.). *Estación Experimental Agrícola de Tucumán. Circular N° 99*, Tucumán, 1941, 10 págs., 5 figs.

HOWARD, Frank L. Antidoting toxin of Phytophthora cactorum as a means of plant disease control. *Science*, Lancaster, Pa., 1941, New Series, Vol. 94, No. 2441, p. 345.

ITZROTT, Heinz. Die Bekämpfung des Beinwells (Symphytum officinale) mit Natriumchlorat. *Wochenblatt der Landesbauernschaft Bayern*, München 1941, 131. Jahrg., Folge 42, S. 939 A-940 A, 1 Abb.

JENNY, J. Stationäre Spritzanlage im Tessin. *Schweizerische Zeitschrift für Obst- und Weinbau*, Wädenswil 1941, 50. Jahrg., Nr. 24, S. 477-480.

JOB, Vittorio. Osservazioni sulla Physalospora malorum. *Note di Frutticoltura*, Pistoia, 1941, anno XIX, n. 12, pp. 162-163.

KÖHLER, E. Ueber die Resistenzeigenschaften von Nicotiana glutinosa gegenüber dem Tabakmosaikvirus. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1941, 51. Bd., Heft 10/11, S. [449]-462. Schrifttum, S. 462.

KÜTHE, K. Ueber die Maikäferbekämpfung bei Wörgl und bei Imst-Tarrenz 1941. *Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz*, Stuttgart 1941, 51. Bd., Heft 10/11, S. 485-497, Abb. 1-4. Schrifttum, S. 497.

LAFON, J. Contribution aux recherches pour diminuer la consommation du cuivre dans la lutte contre le mildiou. *Bulletin de l'Office international du Vin*, Paris, 1941, 14e année, nº 148, p. 120-122.
[*Plasmopara viticola*].

LAFON, René. France: Le mildiou dans les Charentes en 1941. *Bulletin de l'Office international du Vin*, Paris, 1941, 14e année, nº 148, p. 97-120, fig. 1-5.
[*Plasmopara viticola*].

LAMOUR, R. Un insecticide bactériologique du pou rouge ? *Fruits et Primeurs de l'Afrique du Nord*, Casablanca, 1941, 11ème année, nº 120, p. 217.
[*Chrysomphalus aurantii*].

LENZA, P. I trattamenti rameici al grano da seme. *Giornale di Agricoltura della Domenica*, Roma, 1942, anno LII, nº 1, p. 7.

LEYVRAZ, H. Encore la lutte contre le mildiou. *La Terre Vaudoise*, Lausanne, 1942, XXXIVme année, nº 2, p. 17.
[*Plasmopara viticola*].

LÓPEZ MANSILLA, Enrique E. Sobre el problema filoxérico en Cuyo. *Vinos, Viñas y Frutas*, Buenos Aires, 1941, año XXXVII, núm. 432, págs. 112 y 113.
[*Phylloxera vastatrix*].

LUCKAN, J. Winterfrostschäden an Obstbäumen. Eine Zusammenstellung alter und neuer Erkenntnisse für die Obstbaupraxis. Frankfurt/Oder und Berlin, Gartenbauverlag Trowitzsch & Sohn, 1941, 37 S., 14 Abb. Schriftenhinweis, S. 36-37. ("Kleinbücher der Gartenpraxis" 4). Preis 85 Pfg.

MADARANG, Servando A. Rhizoctonia damping-off of cinchona seedlings. *The Philippine Journal of Forestry*, Manila, 1941, Vol. 4, No. 2, pp. 105-121, figs. 1-2, pls. 1-2. References, pp. 118-119.
[*Rhizoctonia solani*].

MALENOTTI, Ettore. Per i trattamenti antiparassitari. La costanza come fattore di efficacia. *Giornale di Agricoltura della Domenica*, Roma, 1942, anno LII, n. 2, p. 11, 1 graf.

MAMMEN, G. Wühlmausbekämpfung. *Die kranke Pflanze*, Dresden 1941, 18. Jahrg., Heft 11/12, S. [95]-99, Abb. 1-2.
[*Arvicola terrestris*].

MARIANI, Mario. Rassegna storica delle infestazioni acridiche italiane e della lotta contro di esse. *Nuovi Annali dell'Agricoltura*, Roma, 1941, anno XXI, 34 pp., 15 figg. Bibliografia, pp. 33-34 (dell'estratto).
[Acrididae].

MCKINNEY, H. H., [and] HILLS, Claude H. Mosaic, chlorosis and necrosis in virus-infected parennial pepper caused directly by products of a deranged metabolism. *Science*, Lancaster, Pa., 1941, New Series, Vol. 94, No. 2442, pp. 372-373.

MENDES, Luiz O. T. A infestação pela "broca do café" em relação ao tamanho dos frutos. *Revista do Instituto de Café do Estado de São Paulo*, São Paulo, 1941, año XVI, núm. 174, págs. 1032 y 1033.
[*Stephanoderes hampei*].

MIQUILENA H., J. B. Larva comedora del follaje del algodón. *El Agricultor Venezolano*, Caracas, 1941, año V, no. 59, págs. 33 a 35, 5 figs.
[*Alabama argillacea*].

MORETTINI, A. Gli anticrittogamici a basso contenuto di rame. *Giornale di Agricoltura della Domenica*, Roma, 1941, anno LI, n. 51, pp. [425]-426.

MORIYAMA, Tadamitsu. Studies on the lethal-effects of insecticides. Part 3. The symptom of death caused by toxicity of the derris sprayed on the body surface of certain insects. *The Formosan Agricultural Review*, Taihoku, Taiwan, Nippon, 1941, Vol. 37, No. 7, pp. 539-553.
[In Japanese with title also in English. — *Aulacophora similis*, *Hispa similis*].

MÜHLE, E[rich]. Über ein starkes Schadauftreten des Ampferblattkäfers. *Die kranke Pflanze*, Dresden 1941, 18. Jahrg., Heft 11/12, S. 100-101, Abb. 1-4.
[*Gastroidea viridula*].

MÜHLE, Erich. Die Blattwespe *Selandria serva* F. als Schädling wichtiger Futtergräser. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1941, 21. Jahrg., Nr. 12, S. [85]-86, Abb. 1-4.

MÜLLER, Heinrich. Die Douglasienwollaus *Gilletteella cooleyi* Gill. und ihre Bekämpfung. *Anzeiger für Schädlingskunde*, Berlin 1941, XVII. Jahrg., Heft 11, S. [121]-125, Abb. 1-8. Schrifttum, S. 125.

NÄGELI, Werner. Über die Bedeutung von Windschutzstreifen zum Schutze landwirtschaftlicher Kulturen. *Schweizerische Zeitschrift für Forstwesen*, Zürich 1941, 92. Jahrg., Nr. 11, S. [265]-280.

NANNIZZI, Arturo. I parassiti delle piante officinali. Repertorio dei parassiti vegetali ed animali che danneggiano le piante officinali, aromatiche e da profumo, spontanee e coltivate e le droghe officinali immagazzinate. Presentazione di Guido Rovesti. Roma, Istituto Poligrafico dello Stato, 1941, XXVII + 544 pp. Bibliografia, pp. [491]-494. (Ministero dell'Agricoltura e delle Foreste. Direzione Generale della Produzione Agricola. Commissione Consultiva per le Piante Officinali). Lit. 25.—
[In literature there was no real, proper practical handbook which could enable collectors and growers of officinal plants and also warehousemen of the drugs obtained, to recognize the plant and animal parasites which attack these plants and their products and which could indicate the means of preventing or at least attenuating the damage when it is a matter of cultivating the plants or conserving the parts used particularly in pharmacy or perfumery.
The repertory of the plant and animal parasites which damage officinal, aromatic and perfume-yielding plants, wild or cultivated, and stored officinal drugs, was in fact elaborated by an expert on the subject, Prof. A. Nannizzi, Director of the Botanical Institute of the University of Siena, with a view to meeting this need. This important volume is divided into three extensive sections and an appendix. The first part deals with the plant and animal parasites of officinal and aromatic plants growing in the wild state. All the necessary indications are given to facilitate the finding and identification of these plants.
The second part treats on the plant and animal parasites of the officinal, aromatic and perfume-yielding plants which are cultivated. Following the brief description of each plant and the general rules for its cultivation, details are given on the respective parasites and on the control methods most suitable from the practical standpoint.
In the third part, the plant and animal parasites of stored drugs are described.
The appendix covers the plant and animal parasites which usually infest drug warehouses, laboratories and pharmacy stocks as well as those which attack different pharmaceutical substances and preparations.
Besides the index, the volume also comprises three alphabetical lists: one of plant parasites, another of animal parasites and the third of host plants].

[NEDERLANDSCHE PLANTENZIEKTENKUNDIGE VEREENIGING]. Nederlandsche namen voor plantenziekten bij landbouwgewassen. Uitgegeven in 1941 vanwege de Nederlandsche Plantenziektenkundige Vereeniging. Wageningen, H. Veenman & Zonen, [1941], 16 blz. Prijs f 0.25 *
[A Commission nominated by the request of the Netherlands Association for plant diseases and composed of Messrs H. A. Diddens, T. A. C. Schoevers

and Miss H. L. G. de Bruyn has compiled this list of the Dutch names of the diseases produced by bacteria, fungi, virus or caused by unfavourable soil conditions on the following plants: *Triticum, Secale, Avena, Hordeum,* meadow grasses, *Zea mays, Polygonum fagopyrum, Linum, Beta vulgaris, Solànum tuberosum, Daucus carota, Vicia faba, Phaseolus vulgaris, Pisum, Trifolium, Medicago, Vicia, Lupinus, Carum carvi, Brassica, Papaver, Allium cepa, Spergula arvensis.* The intention of the Commission is that the names given in the list should be taken as official].

OSBORN, Herbert, assisted by KNULL, Dorothy J. Meadow and pasture insects. Columbus, Ohio, The Educators' Press, [1939], viii + 288 pp., 103 figs. References, pp. 273-283.

OTANES, Faustino Q., and SISON, Pedro L. Pests of rice. *The Philippine Journal of Agriculture,* Manila, 1941, Vol. 12, No. 2, pp. 211-259, fig. 1, pls. 1-18. References, pp. 254-256.

PEGLION, Vittorio. La lotta contro la peronospora della vite oggi e ....vent'anni fa. *Memorie della R. Accademia delle Scienze dell'Istituto di Bologna,* Bologna, 1940, Classe di Scienze fisiche, serie IX, tomo VII, 1939-40, pp. [159]-163. [*Plasmopara viticola*].

PFEIFFER, E., und KÜNZEL, M. Der Regenwurm und die Schädlingsbekämpfung. *Mitteilungen des Vereins für biologisch-dynamische Landwirtschaftsmethode,* Dornach (Schweiz) 1941, Jahrg. 4, Nr. 15, S. 65-68. [Lumbricidae].

QUANTZ, Bernhard. Erste Nachricht vom Auftreten des Erbsenkäfers in Nord-Amerika und Europa. *Die kranke Pflanze,* Dresden 1941, 18. Jahrg., Heft 11/12, S. 102-104. [*Bruchus pisorum*].

Prof. UGO PAPI, *Segretario generale dell'Istituto, Direttore responsabile.*

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BOOKS PRESENTED TO THE LIBRARY OF THE INTERNATIONAL INSTITUTE OF AGRICULTURE

Aguirre Cerda, P. Das Agrarproblem. [Berlin, O. Stollberg, 1940]. 417 p. [First edition: 'The agrarian problem'. Paris, 1929].

Almanacco agrario italiano; piccola enciclopedia agricola diretta dall'Ecc. Arturo Marescalchi. v. 5 per l'anno 1942. Firenze, Marzocco, [1941]. 568 p.

Ambrosi, L. Aspetti di diritto agrario nelle terre dell'Africa Orientale Italiana. Milano, A. Giuffrè, 1941. XI, 66 p. (Roma. R. Università. Istituto di diritto agrario. Pubblicazioni, 6).

Annuario di politica internazionale (1935, 1936, 1938, 1939) [Annate 1-5]. Milano, 1936-1940. 4 v. (Istituto per gli studi di politica internazionale).

Baatz, E. Die Bananenwirtschaft ausserhalb der United fruit company. Hamburg, Friederichsen, De Gruyter & C°., 1941. [5], 116 p. (Schriften des Kolonial-Instituts der Hansischen Universität, Bd. 5. Kolonialwirtschaftliche Reihe, Nr. 2).

Bastoni, G. Il laboratorio; raccolta di esercizi, esperienze, saggi di interesse agrario secondo i programmi governativi, per studenti di Istituto inferiore e superiore agrario, Scuola tecnica agraria e agricoltori autodidatti. Milano, « La Prora », [1941]. 191 p.

Bibliografia dell'Italia d'oltremare, anno 1939. Roma, [I. R. C. E.), 1940. XL, 191 p. (« Bibliografie », serie 2, n° 1). (Istituto nazionale per le relazioni culturali con l'estero. Centro studi di diritto e politica coloniale fascista).

Blohm, G. Siedlung und Landwirtschaft im Reichsgau Danzig-Westpreussen. Berlin, Sohnrey & C°., 1941. 43 p. (Die wirtschaftlichen Entwicklungsmöglichkeiten in den eingegliederten Ostgebieten des Deutschen Reiches. Bd. 4).

Bonino, A. Italienisch für den Verkehr mit landwirtschaftlichen Arbeitern; ein Sprachführer und ein Wörterbuch. Stuttgart, Franckh, [1940]. 59 p.

Borton, H. A selected list of books and articles on Japan in English, French and German compiled by Hugh Borton, Serge Elisséeff, Edwin O. Reischauer. Washington, American Council of Learned Societies, [1940]. x, 142 p.

Bruni, A. Il libro pratico del pescatore all'amo in acque dolci. 2ª ed. Milano, U. Hoepli, [1942]. XVI, 540 p.

Dau, M. Der Weissdorn. Crataegus oxyacantha L.; eine botanisch- chemisch-pharmaceutische Untersuchung. Hamburg, Hänsischer Gildenverlag, 1941. 103 p. (Monographien alter Heilpflanzen. Hft. 3).

Dobler, A. Dorfgenossenschaftliche Maschinenarbeit. Stuttgart, W. Kohlhammer, 1941. XV, 196 p.

Dobler, A. Dorfgenossenschaft und Dorfgenossenschaftshaus. Stuttgart, W. Kohlhammer, 1941. 119 p.

Ellenberg, H. Über Zusammensetzung, Standort und Stoffproduktion bodenfeuchter Eichen- und Buchen-Mischwaldgesellschaften Nordwestdeutschlands. [Hannover, Druck: C. V. Engelhard

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